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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/134,272 08/14/98 WANG

Z 003239.P010

EXAMINER

WM02/0313
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ART UNIT	PAPER NUMBER
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2641

DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

TS

Office Action Summary	Application No.	Applicant(s)
	09/134,272	WANG, ZIFEI PETER
Examiner	Art Unit	
Angela A. Armstrong	2641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 January 2001.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-5;7-18 is/are rejected.

7) Claim(s) 6 is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. ____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

15) Notice of References Cited (PTO-892) 18) Interview Summary (PTO-413) Paper No(s). _____
16) Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) Notice of Informal Patent Application (PTO-152)
17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 20) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Polcyn et al.* (US Patent No. 5,311,588) in view of *Nishiguchi et al.* (US Patent No. 5,664,052)

3. Regarding claims 1, 7, and 13, *Polcyn et al.* discloses a method and system for determining the progress of a calling connection ~~by~~ determining signal transitions from tone to silence, silence to speech, etc. In the Abstract, at col. 1, lines 59-66 continuing to col. 2, lines 1-33, col. 7, lines 49-67 continuing to col. 8, lines 1-25, col. 16, lines 20-37, and col. 16, lines 49-62 *Polcyn et al.* suggests/teaches a method of calculating a first ratio level of said audio signals and an average power level of signals (determining a peak-to-mean likelihood ratio) and comparing...ratio levels to a set of criteria to determine the line status (comparing the peak-to-mean likelihood ratio to a selected threshold to determine whether a frame represents a voice signal).

4. *Polcyn et al.* does not disclose that the ratios used in the detection method are normalized. However, refer to *Nishiguchi et al.* who teach a method and device for discriminating voiced and unvoiced sounds in which for each block or frame for speech, a normalized ratio is calculated and

compared to a predetermined threshold to decide whether the frame is voiced sound, unvoiced sound or background noise (col. 7, lines 31-67 through to col. 8, lines 1-32).

5. Therefore, to the extent that *Polcyn et al.* do not normalize the peak-to-average ratios, it would have been obvious to one of ordinary skill at the time of invention to modify the system of *Polcyn et al.* to normalize the peak-to-average ratios for the purpose of determining whether the frame or sound is voiced, unvoiced or background noise as taught by *Nishiguchi et al.*

6. Claims **2-4, 8-12, and 14-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Polcyn et al.* (US Patent No. 5,311,588) and *Nishiguchi et al.* (US Patent No. 5,664,052) in view of *Graumann* (US Patent No. 5,737,407).

7. Regarding claims **2-4, 8-12, and 14-18** *Polcyn et al.* and *Nishiguchi et al.* disclose everything claimed as applied to claims 1, 7, and 13. However, the combination does not teach using short-term averaged energy, long-term averaged energy, etc., in the voice/speech detection process. However, refer to *Graumann* who discloses a computer system with audio communication capabilities which implements a voice activity detector for an audio communication system which determines relationships between peak level of a signal and current level, standard deviation values of the signal and based on the relationship between peak values and current values of the signal, makes determinations as to whether ~~the~~ there is speech activity in the audio signal. *Graumann* teaches a voice activity detector that provides high accuracy and fast response time (col. 2, lines 10-12).

8. Specifically, *Graumann* teaches “determining a short-term averaged energy” at col. 7, lines 23-48;

“determining a long-term averaged energy” at col. 7, lines 23-48.

“determining whether...short-term averaged energy and a factor is greater than the long-term averaged energy” at col. 7, lines 49-67 through col. 8, lines 1-36;

“determining that current frame represents silence...” at col. 7, lines 49-67 through col. 8, lines 1-36;

“determining whether a difference between long term averaged energy and short term averaged energy is less than a predetermined threshold” at col. 8, lines 37-51;

“determining...current frame...represents voice...” at col. 8, lines 37-51;

9. Therefore, to the extent that *Polcyn et al.* and *Nishiguchi et al.* do not implement short-term averaged energy, long-term averaged energy... in a voice/speech activity detection system, it would have been obvious to one of ordinary skill at the time of invention to modify the system of *Polcyn et al.* and *Nishiguchi et al.* to implement the averaged energy determinations and calculations for the purpose of providing a voice activity detection system which is highly accurate and has a fast response time, as taught by *Graumann*.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Polcyn et al.*, *Nishiguchi et al.*, and *Graumann* as applied to claim 2 above, and further in view of *Janiszewski et al.*, (US Patent No. 5,657,422).

11. Regarding claim 5, “conducting weighted average...” it is noted that *neither Polcyn et al.*, *Nishiguchi et al.*, nor *Graumann* discloses weighted averages. *Janiszewski* discloses a voice activity detection system that estimates energy and noise of a signal. Specifically at col. 6, lines

1-8 *Janiszewski* discloses using a smoothing constant in calculating signal estimates and setting the smoothing constant to provide for acceptable frame averaging.

12. Therefore, to the extent that neither *Polcyn et al.*, *Nishiguchi et al.*, nor *Graumann* disclose weighted averaging, it would have been obvious to one of ordinary skill at the time of invention to modify the voice detection ~~of~~ system of *Polcyn et al.*, *Nishiguchi et al.* and *Graumann* to conduct a weighted average by using a smoothing constant for the purpose of providing acceptable frame averaging as taught by *Janiszewski et al.*

Allowable Subject Matter

13. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Angela A. Armstrong** whose telephone number is **703-308-6258**. The examiner can normally be reached on Monday-Thursday 8:30-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **William R. Korzuch** can be reached on **703-305-6137**. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-6306 for regular communications and 703-308-6296 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

AAA/aaa
March 11, 2001

William Korzuch
WILLIAM KORZUCH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600